REMARKS

Claim 26 has been cancelled in favor of new claim 49, and claims 27-48 have been revised, and are presented for consideration on their merits. A new sheet of drawings, including FIGS 26a and 26b, is enclosed. If any further drawing revisions are necessary, the applicant requests that such change be held in abeyance until the Examiner indicates the presence of allowable subject matter.

Turning now to the contents of the Office Action of March 10, 2010,

Claim Rejections Under 35 USC 112

The Examiner has stated there is inadequate written description of individual modules or panels, transversely opposed, unspaced and untied modules. The wording has been amended in the claims, removing the words not spaced and tied, because the specification at page 2 (disclosure of invention), line 26, notes that some of the module panels may be joined and others may not The joined modules are joined with tie-bolts or push-in ties as mentioned in claim 49. The applicant has referred to spacers and ties to assist the Examiner understand the invention whereas some directly opposed modules are spaced and tied whereas others are not. The spacers and ties have not been removed from the claims.

Reference to the application, Page 12 line 2, attached to individual or adjoining panels clearly states again that individual panels are not joined. The words transversely opposed have now been removed from the claims as such term had not been mentioned in the specification.

As per claim 34, the formwork reversing its formation, this is actually what happens. Applicant's Figure 8 clearly explains Page 7, line 6 and 7 that attachments between the beams and modules can skip one or more modules to reduce the number of ties used. This also occurs in other formations, e.g., Applicant's Figure 15 which clearly shows joined modules or panels (No 52) which are holding in, or reinforcing panels, which are not joined (No 50). Applicant's Figure 21 shows another arrangement, whereas the joined modules or panels (No 70) are surrounded by panels and modules which are not joined. In Figure 15 and 21, this allows a formation to skip one or more modules to reduce the number of ties used. This is stated at Page 7, lines 6 and 7, of the application. While on Page 7, lines 19 and 20 clearly refer to opposed modules (No. 26) that can be joined by a sacrifice wedge bar (No 32) which is a push-in tie.

The reference to alternate means one after another. This word has also been removed from the claims in an effort to enhance the clarity of the claims.

Claim Rejections Under 35 USC 112 (second paragraph)

Claim 26 has been cancelled, and new claim 49 has been cast to overcome the Examiner's objections and rejections, while claiming the subject matter of interest. The reference to the subject matter in the specification is Page 2, lines 26 and 27, wherein some of the module panels may be joined and others may not be joined References are now being made to the modules as joined or not joined. Other terminology, such as spaced and tied, and assembling association, have been withdrawn.

Claim 29 has been corrected and as per Claim 32, it has been corrected by referring to the spherical edge of the module which is perpendicular to the molding face.

Claim 33, Claim 34, Claim 37, Claim 38, Claim 39 and Claim 41 have all been corrected to overcome the Examiner's objections.

Claim Rejection Under 35 USC 103

Claim 26 has been cancelled in favor of claim 49, to highlight the unique and unobvious patentable subject matter. Applicant has devised a unique system which integrates joined modules or panels (the former spaced or tied) with not joined modules and panels (the former no spaces or ties references). Claim 49 notes that only some modules abut in an end to end relationship, but other modules are untied and held in by the joined outer panels.

In Sedran's drawings 24/27 the opposed inner panels are spaced and tied to the outer panels. They are very visible and placed near the trapezium labelled T. They are visible on the front face and side face of the drawing. Two ties appear next to the trapezium block confirmed by four more visible ties on the outside front face of the formwork. Also ties are visible within the void section. All panels are spaced and tied. Figure 24/27 is a box culvert. If this culvert were opened up to be a straight wall, it would still possess its opposing panels, because it in the form of a box it seems like it has inner panels but, in reality, they are directly opposed panels that are spaced and tied.

To ascertain what an inner panel is, the Applicant's Figure 15, plan view, shows outer panels (No 52) and inner panels (No 50). Please note, joined panels (No 52) are joined by tie-bolts (No 53). Applicant's Figure 14 is another version of this application. This is a side elevation view by which opposing modules (No 52) is joined by tie-bolts to another module (No 52). These joined modules hold in opposed panels (No 50).

In Sedran's drawings 24/27, Sedran only has opposing panels. These are not inner panels being held in by outer panels. This procedure is quite common for culvert construction which Sedran is demonstrating.

Drawing 20/27, the Examiner states strap B can accept spacers or ties. Strap B is a tie which can accept another tie - Strap B. Strap B cannot accept spacers which are hollow tubular members which slip over the tie, so the tie is removable.

Applicant's Figure 31 shows a very different concept. The exterior, vertical straps (No 102) hold the opposed modules at a fixed distance apart, secured by rectangular strap (No 103). The two holes on the strap (No 102) can accept tie-bolts which increase the strength of the strap.

Reference to this is in the Applicant's specification at Page 10, Lines 1 9.

Sedran's drawings 20/27, simply shows strap B holding two modules apart, held in by slide on bracket Zs. Trying to incorporate the Applicant's strap features in Figure 31 would not be practical and would serve no purpose. Strap B is a tie which can only accept another tie and stop-end blocks Zs.

It has been asserted by the Examiner that it is obvious to modify Sedran's spacer rods to carry internal horizontal reinforcement bars. However, it is not just the horizontal reinforcement bars which need to be carried, but also vertical reinforcing bars which set out a reinforcing grid which stiffens the assembled modules. Also these bars should extend beyond the formwork to further enhance internal rigidity. These relationships can be found in the application at Page 10, lines 8 9. One horizontal bar on its own will do very little to stiffen or reinforce the assembled modules before concrete is poured.

Furthermore, Sedran's modified tie would not be functional because it cannot dispense with stop-end blocks Zs which hold the panels in place. Panels cannot be placed on top of each other due to blocks Zs.

Bracket 42 in Boeshart is not a push-in tie as mentioned previously. A push-in tie is a unit that pushes into opposing panels simultaneously with one movement. Applicant's Figure 6 shows a push-in tie.

Boeshart, column 4, lines 45 and 46, specifically states "such that when bracket 42 is installed on tie 10" stresses that the bracket is not a tie, but is installed upon a tie.

It has been stated by the Examiner that to modify the spacer rods of Sedran to include a fixing means as taught by Boeshart in order to adjust the spacings between the forms is obvious. Both systems can achieve this. Sedran's block Zs holds the panels and can adjust the spacings and Boeshart's bracket 42 can be placed further down the tie to adjust the distance between the modules.

Figure 10/27 shows connecting means which can attach on any vertical or horizontal connectable edge with pins lettered U. Sedran's formwork has been engineered to be fastened by pins U. The Applicant's formwork has been designed to use a spacer bolt or push-in tie. The spacer-tie bolts and push-in ties are interchangeable because only semi-round apertures are placed on the edge of the modules. Figure 6 of applicant's drawings displays a push-in tie can be pushed into these semi-round apertures.

As per Claim 30, Sedran does not possess quick release clamping devices. Quick release clamping devices can be pulled out of an open-ended slot, while still in its locked position. Sedran does not have open-ended slots but just a round closed aperture through which pins are placed in and they are removed on the same plane.

An example of a quick release clamp is shown in Applicant's Figure 5, wherein two identical wedges are slid into one another. These wedges can be slid out of the open-ended slots, still in their locked position.

Sedran's fastening means are completely different than Applicant's, and work in a different fashion.

As per Claim 31, Sedran teaches the straps are connected to spaced and tied modules. The reason they are connected is because strap B is a tie, just like a tie-bolt. They both serve the same purpose, except that the tie-bolt can be tightened up by a nut to increase its clamping ability, whereas strap B cannot be tightened to clamp because of block Zt and pin H which only fix in place in two opposing panels. Strap B cannot attach to straps, beams and angle irons which are only used

on the outer side of the formwork. These features are clearly shown in Applicant's Figure 31. On the vertical straps there are two apertures through which tie-bolts can be inserted and tightened with nuts. The tighter the nuts are screwed, the more clamping affect it allows.

As per Claim 33, reference should be taken from the Plan view of Applicant's Figure 15. The opposed panels (No 50) are held in by joined panels (No 52). Applicant, at Page 2, lines 26, 27, states "some of the module panels may be joined and others may be not." Applicant's individual panels are best described in claim 32. The individual, un-joined panels can abut end to end as they are still not joined to each other, but held in by outer panels.

Sedran's drawings 20/27, (main drawing) spacer panel L is joined by two tie bolts. Applicant's claim emphasizes that some panels are not joined by any means at all, making the Applicant concept completely different. In Sedran and Boeshart, the form working systems have outer panels holding in inner panels, and even when both systems are combined, the resulting structure would not exhibit any similarities to applicant's form working system.

As per claim 34, Sedran's Figure 10/27 is for visual purposes only. Every panel is joined by tie rods. Panel P has no opposing panel, so no ties are offered in this section. Most modular form work is formed in a horizontal or vertical planes. In contrast, applicant's form work can reverse itself. What is meant by reversing; first you have the joined modules, then you have the modules that are not joined and this continues one after the other. The terminology reversing has been taken out of the claims due to the objections raised by the Examiner.

As per claim 36, Sedran's straps are ties B and are located within the molding surfaces of the panels. To better explain the applicant's concepts Figures 8, 31, 33, 33B, 33C, 34 and 35A should be considered carefully. The straps, beams and angle irons are all positioned externally, on the outside of the form work. The applicant's figure 35C and 35D have an adjusting feature numbered 47 to increase strength of the same. This is done by winding this feature and stressing all the members. The applicant's figure 19B shows an adjustable beam prop, which further helps stiffen the formwork. Sedran's strap B is not capable of performing these duties because it is placed internally (in between the panels)

As per claim 38, Sedran's and the applicant's columns are two completely different applications. Sedran column is formed from ordinary rectangular panels P, which are normally used

in wall construction. Corner tube sections A are joined and connected to these panels, there are no corner panels at all. The applicant's corner panels are right angled and extend out of the corner and are a one piece section. These sections are then joined and the form work for a column is created. The applicants and Sedran columns are completely different from one another, and claim 38 stresses such distinctions.

As per claim 39, Sedran teaches straps can accept ties. Sedran's strap is a tie and strap tie B can attach to another strap tie B by a connecter M within the molding faces of the panel. The applicant has no such arrangement. The applicant relies upon a tie bolt which holds the panels in place. This tie bolt protrudes through the modules and sits proudly on the exterior of the fixed and opposed modules (on both sides). It is on this protruded tie that the straps, beams or angle irons attach, they can attach vertically, horizontally and angular. This is shown in Applicant Figure 8, 31, 33A, 33B, 33C, 34 and 35A.

In Figure 31, the straps are numbered 102, with two apertures per strap, through which tie bolts pass (not shown), and a nut that is screwed onto the tie bolt. Applicant's Figure 33B clearly shows the tied bolt numbered 111 go between two angle irons, this is why the claim is stated inbetween, or other being figure 33C as mentioned in previous examination. These heavy exterior bracing items could not be carried by strap B. Strap B is only used in low ground applications, as displayed in Figures 14/27, 20/27, and 23/27. Strap B can be can only be used in one row applications as well because as any walling application, Sedran displays there is no strap B present.In every multi row modular form work figure 10/27 lower drawing, 21/27 and 24/27 strap B is not used. It would be pointless to attach any exterior items such as the applicant straps, beams and angle irons, as it would achieve very little.

Sedran, at page 13, lines 1 and 2, clearly recites foundations, short beams and shelves; these are all ground level application. It should be taken into consideration that, if another row were attempted, block Zs would be an obstruction, further proof of one row construction. Figure 11/27 one flange Ztg and Zsg on block Zs can only clip onto the top of each panel therefore having only the ability to perform in one row applications.

As per claim 40 in Sedran's Figure 24/27, every panel is spaced and tied (joined); every panel in the figure has two ties. Every opposing panel receives two ties, each panel is abutting

a trapezium T or a corner tube. A tie has not been inserted in the end sections as it would be directly in the void with no opposing panel. Every panel in diagram 24/27 is spaced and tied, and is not holding in individual not spaced and tied panels. The bolt tie then goes through the first panel and into the opposing panel. These panels are of different sizes but are still joined by a tie bolt, securely holding the panels in place. Abutting to various connecting surfaces means they don't only abut end to end as shown in the applicant figure 15 (plan view), but show outer panels 50 abutting connectable inner surface of panel 52. This is what is meant by the terminology "held in." Sedran's form work does not have any of these significant features for holding in panels in this fashion.

As per claim 41, Sedran's Figure 10/27 does not show any alternating panels and there are no untied (not joined) individual panels. Figure 10 displays the modular elements of Sedran's formwork. The top panel P has no opposing panel to contain concrete. For the modules to alternate it should be like the applicants plan view figure 15. Firstly there are spaced and tied modules 52 (joined) holding in panels 50, then you only have unspaced and untied (not joined) panels 50 that are opposed. As it goes from joined modules to modules that are not joined, back to modules that are joined and then onto modules that are not joined, this sequence is continuous and this is what is known as rotation of the formwork. The word rotating has been removed from the claims to help overcome the Examiner's objections. Applicant's Figure 21 shows a continuous rotation on both planes, vertical and horizontal. Sedran's formwork can not achieve this formation.

As per claim 42, it has been previously explained that Sedran's panels are not alternating in any one row. If the panels were alternating, Sedran would have an arrangement of one panel adjoining a different type panel in the one said row. This is not possible with Sedran's form work. As in figure 10/27 the modular elements of the form work are displayed in Sedran, lines 10-12 clearly states this. Sedran also explains that the panels are tied, lines 18-22 relying upon a threaded metal bar commonly used in formwork presently available on the market. Sedran has stated that all the panels are tied and there are no loose panels (not joined) as found in applicant's form work.

As per claims 43 and 44, Sedran does not disclose that his formwork is braced and stiffened externally by straps, beams and angle irons. Sedran also does not achieve internal stiffening with long hard drawn concrete reinforcing bars. Boeshart has bars running horizontally. To stiffen the erected modules internally (in between the molding faces) only a grid system of horizontal and

vertical bars combined can achieve this type of bracing. Boeshart and Sedran do not have this combination and can not stiffen the assembled modules in the void section where the concrete is poured. Applicant's reinforcing serves a double purpose. Firstly it braces the assembled modules which are in a multi row formation, and secondly when the concrete is poured, it reinforces the final concrete structure.

As per claim 45, roto-molding is claimed is because it is an essential part of stiffening the module with its own hollow ribs which kiss off onto the molding face. It is an essential stiffening element of the module which is molded with these elements as one piece and you don't have to add metal or core fibres to stiffen the module, as is commonplace practice. Sedran's compression molding is a completely different process and one can not build stiffening elements into the panel by the one molding process. What is meant by the one molding process is the plastic is injected and the final product is complete first go. Applicant's Figure 44, 45 numbered 130, 131, 132, 134 can kiss off, (unite) with the molding face, and still form a hollow rib which further increases the strength of the molding face. Sedran, in claim 29, has emphasized injection molding; note page 21 lines 3-7.

As per claim 46, Sedran does not teach external corners, and Sedran does not have external corner panels. The corners are normal walling panels which are connected to tubes A. The applicants corners are actual panels that are corners and they join together to form a column. These are two completely different applications.

As per claim 47, it has been previously discussed in the roto-molding section, that the panel comes out complete with internal and external stiffening. Sedran has to add metal cores to the exterior of his panels in order to stiffen them. Applicant's method, or process, is a one piece application. Sedran has to add to the panel after it has been molded to make it function satisfactory reinforcements or stiffeners.

As per claim 48, the Applicant has utilised the reinforcing bars to stiffen the erected form work within the molding faces of the modules. The difference here, relative to Sedran, is that applicant uses these bars to brace his formwork before the concrete is poured. It is a well known fact that these bars only reinforce the final structure. The applicant bars serve a dual purpose. No other formwork is capable of this.

Claim Rejection Under 35 USC 103(A)

As per claims 28, 32, 37

As per claim 28, Sedran drawing 20/27 shows slots running parallel with the molding face. These slots are not open-ended, both ends of the slots are closed. To highlight a open ended slot, reference should be taken from the applicant's Figure 1, item 3, whereas the end of the slot finishes on the outside edge of the flange and it is open, so items can be pulled out of this slot. Sedran slots Pfb page 1/27 are used to extract the panels from the set concrete. Page 6, lines 12-19 of Sedran, clearly explains that the round holes Pf are used for connection purposes, and the slots are used to lever the panels off concrete walls vercoming the suction effect Sedran's slots are not designed for connection purposes.

As for Alberti, such citation does not rely upon slots, instead, Alberti calls for pockets into which a tie fits and connects opposing panels. The pocket (not numbered) on sheet 2 of 4, Figure 3, the side elevation of sectional figure 2, 3-3, show the panel capped by tongue 29; therefore it becomes a pocket and not a slot. Column 5, lines 43-45 of Alberti, claims they are pockets. It has been mentioned because of these pockets it makes the applicant's slots unpatentable. The Applicant slots are used for a completely different purpose of connecting panel to panel and these slots are perpendicular to the molding face.

Alberti's pockets are used for ties to connect opposing panels, not adjoining panels. Alberti connecting panel to panel connection is a tongue (item) 29 which fits into a groove (item) 28. Placing either the pocket, or the tongue and groove connecting items, or both, onto Sedran panels would not achieve anything. Alberti's tie item 34 does not connect adjacent abutting modules or panels, it only ties opposing modules. The combination of Alberti and Sedran can not achieve a quick release device being pulled out of an open ended slot. To reiterate what an open ended slot is, it is open on the top plane, bottom plane and end plane.

As per claim 32, Sedran and Alberti fail to disclose slots. The slots the Applicant employs serve a completely different purpose than Alberti. Thus, combining Alberti's pockets with Sedran's modules would not achieve anything and would not be practical as Sedran's formwork

works with trapeziums, the corner tubes would have to be severely altered to accept Alberti's ties and would lose their functionality. What the Applicant is trying to emphasize in claim 32 is that his panels, which have slots in the spherical edges and bolt sockets within the molding surfaces, can combine with panels that do not have these features. The way this works is the panels that do have the above mentioned features hold in the panels that don't have these features. Sedran and Alberti, when and if combined, could not achieve this unique concept.

As per claim 37 Sedran does not teach that spaced and tied modules can be surrounded by individual unspaced and untied panels (not joined). Sedran 24/27 clearly displays every panel is spaced and tied to, opposing panels, smaller in width. Front and back walls, as well as the side walls, accept two ties per panel located on either side of the trapeziums. What is meant by surrounded by individual unjoined panels is the Applicant side elevation view page 7/15 Figure 21 panel 70 holding all the surrounding panels. Alberti panels are not staggered but are formed in a formation called common bond. The two opposing panels are still directly opposed and are not staggered as the Applicant's on page 9/15 and as shown in Figure 29, whereas the opposing modules are staggered. In most formwork corners panels have to be modified, Alberti being no exception. Including the Alberti formation with Sedran's formwork would achieve very little, simply because every fastening item would have to be relocated to little or no advantage. Also Alberti's opposing modules are not staggered as previously explained by the Applicant opposing panels which are staggered.

Response to argument presented by Examiner

The Examiner agrees Sedran's strap B is not a push-in tie; however strap B cannot attach to any external bracing as mentioned in previous explainations. To best explain this shortcoming in the cited prior art, Applicant's Figure 31 shows external bracing strap, and plan view 33A, 33B and 33C show external angle irons and beams. Figure 34 is a side elevation view. Sedran's strap B can not support such heavy elements externally, as it would bend and misalign the form work. The applicant's arrangement would be of no use to Sedran's and Boeshart's form work. In the case of Boeshart, in the event these heavy exterior braces were attached to his ties, they would shear through the foam panels like a hot knife going through butter

Boeshart does not teach that the reinforcement bars are used for internal stiffening or bracing. Internal stiffening means that the assembled formwork, before concrete is poured, is braced

by horizontal and vertical bars which stiffen and brace the formwork itself. After the concrete is poured into the formwork and it sets, the finished concrete structure is then also reinforced. The applicant has introduced a dual role for these reinforcing bars, which were initially used to only reinforce the finished final concrete structure. Sedran and Boeshart did not appreciate that steel reinforcement can be used for stiffening form work internally (in between the molding faces of the formwork).

Applicant notes that Sedran's pins can not be pulled out quickly. The Applicant quick release devices operate differently to Sedran's. When Sedran's pins are knocked into a round aperture, the circumference of this aperture is complete. There are no side openings for pulling out any connecting devices, still being in locked position. In Sedran's case, the pin or wedge is knocked in through an aperture and can only be removed by knocking it out of the same aperture, on the same plane that it went in.

To explain the applicant's quick release devices, such devices can be pulled out of an open ended slot; see Applicant's Figure 1, item 3. Sedran does not have open ended slots, and even if he did, his pins would not function as they would not lock into place. Sedran's quick release devices are completely different than applicant's quick release devices and function in a different way. Applicant also notes that a hammer has to be used on Sedran's pins or wedges, simply because the forces exerted on these elements, while pouring concrete, virtually jams these items and makes them very difficult to extract. With the Applicant's clamping devices, the quick release devices can be slid out of an open-ended slot Figure 1 item 3, while they are still in their locked, clamped mode.

It has been asserted by the Examiner that strap B is a clamping device. The Applicant's claim 31 states straps, beams and angle irons act as clamping devices only on the exterior (outer side) of the formwork. Sedran's strap B holds two opposing panels in place (internally) within the molding faces. Although they are called straps in Sedran, they both serve a different purpose. Applicant's Figure 8, side elevational view, clearly shows straps, beams and angle irons clamping rows upon rows of modules together, while Sedran's strap B cannot serve this clamping function as it is located within the molding surfaces of the joined opposed panels.

As per claim 33, the Applicant points out that some module panels are joined and some may not be joined. The panels that are not joined on any plane are held in or retained in place

by modules that are joined. Though Sedran's Figure 20/27 is a one row application, panel L is bolted in (joined). It can be argued that strap B, not the panel, can be used only in a one row application. All of Sedran's multi row applications figure 10/27 cannot facilitate strap B.

The Examiner states that claims from 37-42 are unclear and some are indefinite. To overcome the examiners objections, these claims have been amended. Though Sedran's modules are not roto-molded they are force injected molding process and Sedran has acknowledged same on page 21 claim 29. The Applicant has claimed it because it is an essential molding process and the only molding process that can achieve a panel with its own hollow ribs mated with the molding face of the module. The molded assortments of ribs are fully enclosed, Applicant Page 13/15 Figure 44, items 131, 132.

The kissoffs are clearly shown, and described on Page 14/15, Figure 45, whereas the completely closed rib 130 attaches to the molding face of the module. The mating process is known in the industry as "kiss offs" and within the module all these ribs are built in as one piece. Sedran's compression molding can not achieve this and consequently Sedran has to place separate metal or fibre cores and physically insert them into his panels to stiffen them up. By employing roto-molding, this is not necessary in applicant's technique. The final structure is one piece without adding metal or fibre cores, all the ribs have been built in because of the roto-molding process.

As per claim 46, the Examiner acknowledges that the Applicant's concept is completely different than Sedran's vertical column but still believes all the limitations are met by Sedran. The Applicant believes the only similarities between the two different form work concepts (Applicant and Sedran) is the end product, i.e., a vertical concrete column. The Applicant cannot use his corner panels in a row of formwork until an external corner is reached. Sedran can use his column panels in a wall situation, there is no comparison and no limitations.

As explained previously, the Applicant's internal stiffening terminology refers to reinforcing bars stiffening the erected modules and this stiffening takes place within the molding surfaces of the joined modules (the void where the concrete is poured into). It has not been clarified properly by the Applicant as to the meaning of internal stiffening. Sedran uses metal or fibre cores to stiffen only the panel itself and these items cannot be molded in with compression molding.

Based on the foregoing discussion attorney for applicant believes that claims 27-49 are patentable in content. Prompt and favorable consideration of the Amendment is clearly warranted.

In the event that the Examiner believes that prosecution would be advanced via a telephone conference, or a personal interview, the Examiner is encouraged to contact the undersigned attorney at 703.415.0100.

Respectfully submitted,

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Date

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